

Tandem Routing (1088)

Tandem Routing provides for access by ESPs to the exchange network with trunk and/or line interfaces through tandem switches. This allows ESPs to interconnect with the network at a single point and be accessed by customers in a selected group of end offices, all of which subtend that tandem. In some jurisdictions, at the option of the ESP, calls from a particular end office may be blocked or forwarded to the ESP, allowing the ESP to create a custom services area from the LATA sector served by the tandem.

Generic Name of ONA Service	Product Name	BSE or CNS
Tandem Routing	AM - Tandem Routing	BSA *
	BA - Tandem Routing	BSE
	BS - Custom Service Areas	BSE
	NX - Tandem Routing	BSA *
	PB - Tandem Routing	BSA *
	Qwest - Tandem Routing	BSA *

FEATURE OPERATION:

Tandem translations supply data for routing calls over tandem trunks. Tandem trunks that are incoming from a tandem office or central office cannot terminate at a line or tone circuit in a local office, with the exception of a connection to reorder tone when all outgoing trunks are busy or a network blockage occurs. Instead, these trunks are switched to tandem completing trunks that are outgoing to a local office.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A	5E2(2)	BCS19

2. All three switch types require specific generic software to configure the switch for tandem operation. An example of this is the Northern Telecom NTX386AA feature package, used in the DMS 100/200 to configure this switch for Access Tandem capabilities. This feature package enables access tandem translations and screening, trunking, treatments, and billing as well as various software support features. Because all offices do not contain the necessary feature packages for tandem trunking, the local exchange company must be contacted for specific geographic locations of the switches with this capability.
3. In some regional companies, this service may be limited to trunk side access services utilizing Feature Groups B and D protocol, or Feature Group D protocol only.

* For Ameritech, NYNEX, Pacific Bell and Qwest, this is met by an alternative of the Circuit Switched Trunk BSA.

4. References:

- GR-540 LSSGR: Tandem Supplement (A Module of LSSGR, FR-64), Issue 2, March 1999 (Replaces TR-TSY-000540, Issue 2).

This service, if offered as a BSE, is associated with the Circuit Switched Trunk basic serving arrangement.

Three Way Call Transfer (1089)

Three Way Call Transfer provides the ESP who is on an established call with the ability to add another party to perform a three way conference. After establishing the conference, the ESP may drop their connection without disconnecting the remaining two parties. This action allows the ESP to transfer specific calls and free their line to initiate or receive another call.

Generic Name of ONA Service	Product Name	BSE or CNS
Three Way Call Transfer	AM - Three Way Call Transfer	BSE
	BA - Three-Way Call Transfer	BSE
	BS - User Transfer	BSE or CNS
	NX - Call Transfer	BSE
	PB - Call Transfer	BSE
	Qwest - Call Transfer	BSE

FEATURE OPERATION:

1. To transfer an established call: Advise first party, then depress the receiver button (recall dial tone is heard); dial number of the third party (hear ringing); announce the call, depress the receiver button to add on the first party, then hang up.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A*	5E5*	BCS29

* Note that on the 1A ESS and 5ESS, this is made available by placing customers in a Centrex Common Block.

2. An additional option for the ESP with Centrex is to allow calls to be transferred outside of the Centrex environment. This optional feature is known as DID/DOD Transfer.
3. Call Forwarding Variable is compatible with Three Way Call Transfer service.
4. Call Hold and Three Way Call Transfer can be assigned to the same line.
5. Call Pickup and Three Way Call Transfer can be assigned to the same line.
6. Speed Calling and Three Way Call Transfer can be assigned to the same line.
7. Three Way Call Transfer may be assigned to either or both parties on a Two-Party Line.

8. Three Way Call Transfer may not be provided on the following lines:

- Coin Lines
- Denied Originating Lines
- Four and Eight Party Lines
- PBX Lines
- Hotel/Motel Calls Routed to TSPS

9. References:

- GR-579 LSSGR: Add-On Transfer and Conference Calling Features, FSD 01-02-1305 (A Module of LSSGR, FR-64), Issue 1, June 2000 (replaces TR-TSY-000579 Issue 1 – no technical changes).

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

Uniform 7 Digit Access Number - Remote Call Forwarding (1090)

This capability provides a uniform seven-digit telephone number which can be dialed without an NPA prefix and is remotely call forwarded to an ESP, thereby giving an appearance of a local presence. The subscriber (ESP) may pay all end user customer usage charges and can specify a custom routing arrangement with either a central location or multiple locations throughout a LATA.

This capability uses Remote Call Forwarding technology, simulated facility groups and a dedicated NXX code. Custom Routing is an added feature.

Generic Name of ONA Service	Product Name	BSE or CNS
Uniform 7 Digit Access Number - Remote Call Forwarding	BA - One Number Service	BSE

FEATURE OPERATION:

To reach a subscriber, a client dials the seven digit number assigned by the telephone company. The call is routed to the central office switch where the translations for the capability reside. From there the call is directed to the destination specified by the subscriber. The number of simultaneous calls that can be directed to a destination is controlled by a Simulated Facility Group. Calls are completed via the Public Switched Network.

To reach a subscriber with Custom Routing, a client dials the seven digit number assigned by the telephone company. The call is translated in the originating switch and directed to the destination specified by the subscriber. Since the translations are done in each originating switch, each switch can direct calls to a different destination. A Simulated Facilities Group is established in each end office switch with Custom Routing to limit the number of simultaneous calls that can be forwarded from that switch. Calls originating in switches without translations for this capability are routed to an announcement. Calls are completed via the Public Switched Network.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	1A ESS	5ESS	DMS-100
Earliest Generic Release	1AE8A	5E2(2)	BCS19

2. To establish this capability and to change an established arrangement for this capability requires a service order.
3. Subscribers desiring the Custom Routing option must specify the central office switches they wish to serve. Calls originating in an area that has not been designated as part of a Custom Routing area will receive a vacant code announcement.

4. References:

- Reference for Remote Call Forwarding: GR-581 LSSGR: Remote Call Forwarding, FSD 01-02-1402 (A Module of LSSGR, FR-64), Issue 1, June 2000 (replaces TR-TSY-000581 Issue 1 – no technical changes).

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

Uniform 7 Digit Access Number via Overlay Networking (1091)

This feature provides the ESP with a uniform 7 digit directory number for use (for example) across a LATA, state or regional company. The clients will be able to dial one number from all locations within the specified area(s), and the calls will be routed to a specified ESP location within each LATA. Uniform Access Number is the ability of an ESP to use the same 7 digit telephone number in multiple service areas, possibly region-wide. All numbers used in Uniform Access Number will come from an NXX (or NXXs) especially designated for ESP use.

Generic Name of ONA Service	Product Name	BSE or CNS
Uniform 7 Digit Access Number via Overlay Networking	BS - Uniform Access Numbers for Business Lines	BSE

FEATURE OPERATION:

The feature is supported by trunking architecture that could include direct and tandem switching center routing to the called ESP. Future routing plans will include Common Channel Signaling (SS7) technology.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. No specific vendor software or features are required. Specific telephone company architecture, capabilities and operation could vary.
2. References:
 - No requirements reference available.

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

Warm Line (1092)

The warm line capability is a Central Office switch based automatic dialing feature.

If an ESP's client with a warm line capability goes off-hook and commences dialing within the time delay period, the call will proceed normally as dialed. If dialing has not started before the end of the time delay period, a stored number is automatically dialed.

Generic Name of ONA Service	Product Name	BSE or CNS
Warm Line	AM - Easy Call	CNS
	BA - Warm Line	CNS
	BS - Warm Line	CNS
	NX - Warm Line	BSE or CNS
	PB - Warm Line	CNS
	SWB - Warm Line	CNS
	Qwest - Warm Line	CNS

FEATURE OPERATION:

1. A subscriber of this service, upon going off-hook to initiate an outgoing call has the option to either:
 - a. Dial the call in the normal manner or
 - b. Wait for the prespecified time delay period and have the call automatically dialed to a single predetermined number or
 - c. If calling from a touchtone phone, dial the # to immediately activate the automatic dialing.
2. The service, including the time delay interval and the predetermined number, is initially activated via a service order with the telephone company.
3. Subsequent changes to the time delay interval may only be made via a telephone company service order. Changes to the predetermined number may be made via a telephone company service order or, as an option, be made from the subscriber's line in the following manner:
 - a. Listen for dial tone.
 - b. Dial a telephone company assigned update code and receive second dial tone after a four second pause (subscribers with touchtone lines can avoid this pause by dialing # after the update code).
 - c. Dial the new number. After a short time-out period, the new number will be active.

If the above-described option is available, the service can be deactivated by following the same procedure but not dialing in a new number. To reactivate the service, the subscriber would again follow the above-described procedure and must re-enter the predetermined number.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is available in the following central office switches:

Switch Type	DMS-100
Earliest Generic Release	BCS17

2. The predetermined telephone number can be any number normally dialable from the subscriber's line.
3. The time delay period is specified on a per line basis and can range from 0 to 20 seconds (a usual value would be 4 or 5 seconds).
4. Incoming calls are unaffected by this service.
5. A line with this service cannot have Hot Line service.
6. Warm Line can be used in conjunction with Three Way Calling or Three Way Call Transfer if the subscriber wishes to add the predetermined number to an established call.
7. No LSSGR reference available.

This service, if offered as a BSE, is associated with the Circuit Switched Line basic serving arrangement.

2. Technical Descriptions for Packet Switched Serving Arrangements

Call Detail Recording Reports (Packet) (1003)

This service will provide the ESP with a data record of all calls made to their telephone number. The record will include called and calling NTN (Network Terminal Number), date, time of day, number of segments and the duration of the call.

The call details will not be delivered in real time, but as a paper or magnetic tape output. The technology to provide Call Detail Recording is resident in two systems: first, the packet switch where the call originates must have recording capability; and second, the BOC's data processing system must be able to sort the recording information and extract the call details on calls made to the ESP's called number.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Detail Recording Reports (Packet)	BA - Monthly Detailed Connection File	BSE
	NX - Call Detail Recording Reports-Packet	BSE or CNS
	PB - Call Detail Recording Reports	*
	SWB - Reports	BSE
	Qwest - Access Service Billing Information	BSE

FEATURE OPERATION:

See above description.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

- Two reports may be provided either as paper or magnetic tape output, the Summary Report or the Detailed Report. The two reports may be sorted by three key elements:
 - NUI - Network User Identification
 - Calling NTN (Network Terminal Number)
 - Called NTN (Network Terminal Number)
- The actual information and report format may vary by company.
- References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

* Pacific Bell does not consider "paper or magnetic tape output" as a Basic Service Element. Pacific Bell does and will continue to provide call detail information to its customers.

Call Redirection - Packet (1004)

Call Redirection is an optional intraLATA Public Packet Switched Network (PPSN) feature that allows the network to automatically redirect calls to a predefined backup DTE (Data Terminal Equipment) under specified conditions. The primary DTE may designate a list of secondary DTEs called a back-up list. The network may be able to search the list in sequence until a connection can be established.

Generic Name of ONA Service	Product Name	BSE or CNS
Call Redirection - Packet	AM - Call Redirection	BSE
	BA - Call Redirection	BSE
	BS - Call Redirection	BSE or CNS
	NX - Call Redirect	BSE or CNS
	PB - DTE Backup	BSE
	SWB - Packet Call Redirection	BSE
	Qwest - Backup/Redirection	BSE

FEATURE OPERATION:

The PPSN will provide the calling clients DTE/CPE with the address and reason for redirection of the call to a secondary DTE. The network will also provide the secondary DTE with data in the incoming call packet as to why the call was forwarded and the address of the primary DTE.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The Packet Switch, Access Concentrator or ISDN Packet Handling Function should support X.25 direct access interface.
2. LEC ISDN interface to PPSN should support recommendation X.75' of the International Telecommunication Union-Telecommunication Standardization Sector (ITU-TS) [formerly CCITT].
3. PPSN supports both individual and hunt group DTE access. Call Redirection applies to all addresses associated with subscriber access.
4. Call Redirection is limited to interfaces within a single LATA.
5. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).
 - TR-NWT-001249, X.25 Call Redirection and Call Deflection Generic Requirements, Issue 1, December 1992.

This service, if offered as a BSE, may be associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Closed User Groups - Packet (1005)

Closed User Group (CUG) is a Public Packet Switched Network feature that controls communication between Data Terminal Equipment (DTEs) belonging to the same CUG. Various CUG feature options are designated by the user such as:

- Incoming Calls Barred With CUG, allows a member of a CUG to originate calls to other members of the CUG, but cannot receive incoming calls.
- CUG With Incoming Access, allows a member of a CUG to receive incoming calls from any DTE not in the CUG.
- Outgoing Calls Barred With CUG, allows a member of a CUG to receive calls from other members of that CUG, but cannot originate any calls.
- CUG With Outgoing Access, allows a member of a CUG to make outgoing calls to any DTE.

A DTE can be a member of more than one CUG.

Generic Name of ONA Service	Product Name	BSE or CNS
Closed User Groups - Packet	AM - Closed User Group	BSE
	AM - Closed User Group	CNS
	BA - Closed User Groups	BSE or CNS
	BS - Closed User Group	BSE or CNS
	NX - Closed User Group	BSE or CNS
	PB - Closed User Group	BSE
	SWB - Closed User Group	BSE
	Qwest - Closed User Group	BSE

FEATURE OPERATION:

Closed User Groups provide a mechanism for controlling communication that is defined by the client/user when the service is requested. A preferential CUG may be chosen at subscription and the preferential CUG will automatically be selected if a specific CUG is not designated in the call request packet. Screening of the CUG may be performed at the originating and terminating interfaces as well as the PPSN X.75 interface. The call request is cleared if found invalid at any screening point.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN and ISDN Packet Handling Facility (PHF) should be capable of supporting more than 100 CUGs on an X.25 interface.
2. The PPSN Access Concentrator should be capable of supporting up to 10 CUGs on an X.25 interface.
3. The PPSN X.75 interface should support 100 CUG codes.

4. References:

- GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Direct Call - Packet (1006)

Direct Call is an optional Public Packet Switched Network (PPSN) feature which enables the calling Data Terminal Equipment (DTE) to automatically initiate a call request without supplying the called destination address.

Generic Name of ONA Service	Product Name	BSE or CNS
Direct Call - Packet	AM - Packet - Direct Call	CNS
	BA - Auto Call Ports	CNS
	BS - Direct Call	CNS or BSE
	NX - Direct Call	BSE or CNS
	PB - Direct Call	CNS
	SWB - Packet Direct Call	CNS
	Qwest - Auto Call	CNS

FEATURE OPERATION:

The Direct Call feature allows the PPSN Access Concentrator (AC), or ISDN Packet Handling Facility (PHF) to set up calls to a presubscribed address with minimal input from the user. The presubscribed address is established by the customer at the time the service is provisioned. This address, which is assigned a logical channel number, is used in an originating call request whenever no called address is provided by the calling DTE.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN Access Concentrator should support X.25 direct access and dial in interfaces.
2. The PPSN Access Concentrator should support asynchronous direct access and dial in interfaces.
3. The ISDN Packet Handling Facility (PHF) should support the X.25 standard interface and future protocol requirements.
4. The ISDN default throughput class value is 9600 bps for all X.25 interfaces. The range of throughput class values that should be supported on all ISDN X.25 interfaces is: 75, 150, 300, 600, 1200, 2400, 4800, and 9600 bps. For B-channel and 64 kbps D-channel interfaces, the following throughput class values should be supported in addition: 19.2, 48, 56 and 64 kbps (the last two values as soon as codepoints are assigned).
5. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).
 - International Telecommunication Union-Telecommunication Standardization Sector (ITU-TS) [formerly CCITT] 1980, 1984 and 1988 recommendations for X.25 and asynchronous interface requirements.

This service, if offered as a BSE, is associated with the Packet Switched X.25 basic serving arrangement.

Fast Select Acceptance - Packet (1007)

Fast Select Acceptance is an optional feature which works in conjunction with the Fast Select Request facility. This capability allows the called Data Terminal Equipment (DTE) to receive user data in the call setup packet. The terminating (called) DTE must be subscribed to the Fast Select Acceptance facility to receive Fast Select call. If the terminating DTE does not subscribe to Fast Select Acceptance, the Data Circuit Terminal Equipment (DCE) would respond to the Fast Select Request call of the origination DTE with a clear indication packet, indicating that Fast Select Acceptance is not subscribed to.

Generic Name of ONA Service	Product Name	BSE or CNS
Fast Select Acceptance - Packet	AM - Fast Select Acceptance	BSE
	BA - Fast Select Acceptance	BSE
	BS - Fast Select	BSE or CNS
	NX - Fast Select Accept	BSE or CNS
	PB - Fast Select Acceptance	BSE or CNS
	SWB - Fast Select	BSE
	Qwest - Fast Select Acceptance	BSE

FEATURE OPERATION:

The Fast Select Acceptance feature permits the calling DTE to send up to 128 octets of user data in the call setup packet to a called DTE subscribed to the Fast Select Acceptance feature. The service is available in a restricted and unrestricted mode. In the unrestricted mode the called DTE has an option to accept the call request and exchange data packets. In the restricted mode the call request is cleared and only data associated with call setup and clearing is exchanged.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is defined in the International Telecommunication Union-Telecommunication Standardization Sector (ITU-TS) [formerly CCITT] X.25, X.75 and X.75' utilities as always required.
2. The PPSN Access Concentrator (AC) should support X.25 direct access and dial-in interfaces.
3. The ISDN Packet Handling Facility should support the X.25 direct access interface to the user and the X.75' interface to the PPSN.
4. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Fast Select Request - Packet (1008)

Fast Select Request is a Public Packet Switched Network PPSN optional per-call feature that allows user data to be included in the originating call request packet sent from the calling Data Terminal Equipment (DTE) to the called DTE. The called or terminating DTE must be subscribed to the Fast Select Acceptance facility to receive Fast Select Request calls.

Generic Name of ONA Service	Product Name	BSE or CNS
Fast Select Request - Packet	AM - Fast Select	CNS
	BA - Fast Select Request	CNS
	BS - Fast Select	BSE or CNS
	NX - Fast Select Request	BSE or CNS
	PB - Fast Select Initiate	BSE or CNS
	SWB - Fast Select	BSE
	Qwest - Fast Select Acceptance	BSE

FEATURE OPERATION:

The Fast Select Request service permits the calling DTE to send up to 128 octets of user data in X.25 call setup packets. The service can be provided in a restricted and unrestricted mode. In the unrestricted mode the called DTE has an option to accept the call request and exchange data packets. In the restricted mode the call request is cleared and only data associated with call setup and clearing is exchanged.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is defined in the International Telecommunication Union-Telecommunication Standardization Sector [formerly CCITT] X.25, X.75 and X.75' utilities as always required.
2. The PPSN Access Concentrator (AC) should support X.25 direct access and dial-in interfaces.
3. The ISDN Packet Handling Facility should support the X.25 direct access interface to the user and the X.75' interface to the PPSN.
4. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, may be associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Hunt Groups - Packet (1009)

Hunt Groups is an optional subscription Public Packet Switched Network (PPSN) feature which allows a subscriber to associate a single address with a group of asynchronous or X.25 direct interfaces. Incoming calls routed to the group address are distributed based on the type of hunting requested by the subscriber. The PPSN Hunt Group feature may vary in operation and capabilities provided by specific packet switch vendors.

Generic Name of ONA Service	Product Name	BSE or CNS
Hunt Groups - Packet	AM - Hunt Groups	BSE
	BA - Multiple Channel Hunt Groups	BSE
	BS - Hunt Group	BSE or CNS
	NX - Hunting	BSE or CNS
	PB - Hunt Group (INT/EXT)	BSE
	SWB - Packet Hunt Group	BSE
	Qwest - Multiple Port Hunt Group	BSE

FEATURE OPERATION:

The PPSN Access Concentrator (AC) or ISDN Packet Handling Facility (PHF) will provide as a subscription option a hunt group capability that distributes incoming calls to a single packet network address. Three hunting arrangements that may be provided by packet vendors are:

- Sequential Hunt - all calls are delivered to the first access interface. If busy, calls will be delivered to the second interface. If that interface is busy, calls will be delivered to the third, and so on until the call is completed. If all sequential access interfaces are busy, the call will be cleared.
- Uniform Hunt - hunting arrangement keeps track of the last incoming call and delivers the next call to the next interface on the hunt list. The call is cleared when all interfaces are busy.
- Load Sharing Hunt - the user specifies the number of calls per interface before moving to the next address. If the last interface is busy the process repeats from the first address on the list.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN Access Concentrator (AC) should support asynchronous and X.25 direct access interfaces.
2. The ISDN Packet Handling Facility (PHF) should support X.25 direct access interfaces.
3. The AC should support at least ten X.25 direct access interfaces.
4. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, may be associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Menu Access Translator - Gateway (1010)

Gateway Service is an optional Public Packet Switched Network (PPSN) service that provides a directory of information providers.

Generic Name of ONA Service	Product Name	BSE or CNS
Menu Access Translator - Gateway	Qwest - Community Link	BSE

FEATURE OPERATION:

The PPSN Access Concentrator (AC) or ISDN Packet Handling Facility (PHF) should provide the user with an abbreviated address for ESPs listed in the Gateway. Upon selection of the desired address, the Gateway will set up a call and route the calling DTE (Data Terminal Equipment) or dialup computer to the ESP. Service capability and details of operation will vary in each regional Bell Operating Company.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN Access Concentrator (AC) should support X.25 and asynchronous direct and dialup interfaces.
2. The ISDN Packet Handling Facility (PHF) should support X.25 direct access interface to the user and X.75 to the PPSN.
3. The PPSN should support X.75 to the IC/ESP.
4. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Message Waiting Indicator - Packet Access (1011)

This capability allows an ESP to indicate to its subscriber that a message is waiting for retrieval. With this capability, the ESP can activate/deactivate an audible signal, e.g., stutter dial tone, on the ESP's client's line. This capability provides the ESP access to the MWI function in many end offices via dialup or dedicated access to the LEC packet switched network. The packet switched network will deliver the message waiting indicator activation/deactivation request to the ESP's client's end office.

Generic Name of ONA Service	Product Name	BSE or CNS
Message Waiting Indicator - Packet Access	SWB - Digital Customer Alerting	BSE

FEATURE OPERATION:

This capability allows packet switched access to the central office Simplified Message Desk Interface (SMDI) feature for providing ESP client delivery of the Message Waiting Indication (MWI) activation and deactivation messages for stutter dial tone. Access is made to the SMDI port through the public packet switched network.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The SMDI feature is available in the following central office switches:

Switch Type	5ESS	DMS-100
Earliest Generic Release	5E4.2	BCS30

2. This capability could be used in conjunction with services Call Forwarding - Busy Line & Call Forwarding - Don't Answer and Direct Inward Dialing. Due to the limitation of central office switches which can be equipped with SMDI, this capability will be offered only in selected 5ESS and DMS-100 equipped serving offices.

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Preselection for Data Services (1013)

Preselection for Data Services is an optional International Telecommunication Union-Telecommunication Standardization Sector (ITU-TS) [formerly CCITT] defined Public Packet Switched Network (PPSN) per call subscription feature that provides the user with the ability to select a preferred Interconnect Carrier (IC) on internetwork/interLATA calls. This feature will automatically select an IC when the calling DTE (Data Terminal Equipment) does not identify the Data Network Identification Code (DNIC) of the called IC in the Recognized Private Operating Authority (RPOA) field.

Generic Name of ONA Service	Product Name	BSE or CNS
Preselection for Data Services	BA - RPOA Preselection	BSE or CNS
	BS - RPOA Preselect	BSE or CNS
	NX - RPOA Preselection	BSE or CNS
	PB - IC/VAN Preselection	BSE or CNS
	SWB - RPOA Preselection	CNS

FEATURE OPERATION:

The PPSN Access Concentrator (AC) and ISDN Packet Handling Facility (PHF) should provide the capability for an originating DTE user to select a preferred IC at subscription. The AC and PHF should access the preselected DNIC/INIC from the subscriber's profile and route the call to the IC over an X.75 interface.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. The PPSN AC should support asynchronous and X.25 direct or dialup interfaces.
2. The ISDN PHF should support X.25 direct interfaces.
3. References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, is associated with the Packet Switched X.25 and X.75 basic serving arrangements.

Reverse Charge Acceptance - Packet (1014)

Reverse Charge Acceptance is an optional per-call Public Packet Switched Network (PPSN) subscription feature that allows a call from an originating Data Terminal Equipment (DTE) to be charged to the terminating DTE. Upon receiving a reverse charge indication the incoming DTE may accept or reject the call.

Generic Name of ONA Service	Product Name	BSE or CNS
Reverse Charge Acceptance - Packet	AM - Reverse Billing	BSE
	BA - Reverse Charge Acceptance	BSE
	BS - Reverse Charging	BSE or CNS
	NX - Reverse Charge Acceptance	BSE or CNS
	PB - Reverse Charge Acceptance	BSE
	SWB - Reverse Charge Acceptance	BSE
	Qwest - Reverse Charge Acceptance	BSE

FEATURE OPERATION:

The PPSN Data Circuit Terminating Equipment (DCE) and the ISDN Packet Handling Function (PHF) should deliver the reverse charging call request to the called DTE/DCE or CPE/PHF only when the interface is configured for reverse charging, otherwise the call is cleared. A Network User Identification (NUI) parameter may be signaled in the call accept packet.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

- Reverse billing for the packet charges is allowed by assigning the packet feature "Reverse Charge Acceptance" to the ESP's voice grade line circuit switched termination on the Packet Switch.
- The reverse charging acceptance allows the X.25 ESP to accept their end users' applicable packet charges on calls that their customers initiate with a billing designation of the terminating Data Terminal Equipment (DTE). During the call setup, the originating DTE signals that reverse charging is being requested by setting the reverse charging facility field in the call request packet. This is done on a per call basis. If the terminating DTE subscribes to the reverse charge acceptance service, then the terminating DTE will receive the associated call packet with the reverse charging field set. If the terminating customer does not subscribe to the reverse charging acceptance service, the call will be cleared and the originating DTE will receive a response indicating that the reverse charge acceptance is not an acceptable option.
- References:
 - GR-301 Public Packet Switched Network Generic Requirements (PPSNGR), Issue 2, December 1997 (replaces TR-TSY-301, Issue 2).

This service, if offered as a BSE, may be associated with the Packet Switched X.25 and X.75 basic serving arrangements.

3. Technical Descriptions for Dedicated Access Arrangements

Access To Clear Channel Transmission (1026)

This capability provides for 64 Kbps clear channel transmission on 1.544 Mbps dedicated lines.

Generic Name of ONA Service	Product Name	BSE or CNS
Access To Clear Channel Transmission	AM - Access To Clear Channel Conditioning	BSE
	BA - Clear Channel Capability	BSE
	BS - Access To Clear Channel Transmission	BSA *
	NX - Access To Clear Channel Transmission	BSE
	PB - Access To Clear Channel Transmission	BSE
	SWB - Clear Channel Capability On 1.544 Mbps	BSE
	Qwest - Clear Channel Capability	BSE

FEATURE OPERATION:

This service offers 64 Kbps channel capacity on a dedicated point-to-point 1.544 Mbps high capacity circuit between two customer-designated premises. It allows a customer to transport an all-zero octet over a DS1/1.544 Mbps high capacity channel, providing an available combined maximum 1.536 Mbps data rate. This arrangement requires the customer signal at the channel interface to conform to Bipolar with eight (8) Zero Substitution (B8ZS) line code as described in Technical References TR-NPL-000054 and TA-TSY-000342.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This service requires the customer to obtain a dedicated 1.544 Mbps point-to-point circuit for transport of multiple 64 Kbps channels and is subject to the availability of facilities.
2. References:
 - GR-54 DS1 High-Capacity Digital Service End User Metallic Interface Specifications, Issue 1, December 1995 (replaces TR-NPL-000054, Issue 1).
 - GR-342 High-Capacity Digital Special Access Service Transmission Parameter Limits and Interface Combinations, Issue 1, December 1995 (replaces TR-INS-000342, Issue 1).
 - Pacific Bell document PUB L-780077 Service Description and Interface Requirements for Alternate Access Arrangements to Pacific Bell/Nevada Bell Digital Data Services, Issue 3, September 1993.
 - Qwest publication 77323 DS-1 Clear Channel Capability, Issue B, June 1989.

This service is associated with the Dedicated High Capacity Digital (1.544 Mbps) basic serving arrangement.

* BellSouth will offer this as a BSA alternative.

Access To Operations Support Systems Information (1027)

This service will offer the ESPs a common, mechanized presentation system for access to Network Management products, such as network reconfiguration, while also providing customer access to internal operations support systems for additional information and control of their network.

Access to this service will be through a customer provided terminal, with the choice of dial access or dedicated private line. This service will provide a secure and user friendly interface to the customers in providing capabilities and support in some or all of the following areas of service management: (1) Administration, (2) Security, (3) Performance, (4) Fault Management, (5) Reconfiguration, and (6) Accounting.

Generic Name of ONA Service	Product Name	BSE or CNS
Access To Operations Support Systems Information	BS - Administrative Management Service (AMS)	BSE or CNS

FEATURE OPERATION:

The customer will be able to access a common, mechanized presentation system on either a dial-up or dedicated basis. It will allow the customer access to information from selected telephone company administrative Operations Support Systems through a secure gateway and provide basic, integrated access to other existing network management products.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This feature is independent of central office switch type.
2. References:
 - BellSouth technical reference TR 73531 Interfaces Between Miscellaneous Control and Status Functions of BellSouth SPCS Central Offices and Customer Premises Equipment, May 1989.

This service, if offered as a BSE, is associated with the Dedicated Digital (< 64 kbps) basic serving arrangement.

Automatic Protection Switching (1028)

Automatic Protection Switching provides the ability to monitor a non-switched facility between the ESP premises and the wire center serving the premises and to automatically switch to a spare facility if the performance of the original facility degrades or fails. It requires compatible equipment at both the ESP premises and the serving wire center.

Generic Name of ONA Service	Product Name	BSE or CNS
Automatic Protection Switching	AM - Automatic Loop Transfer	BSE
	BA - Automatic Loop Transfer	BSE
	BS - Automatic Protection Switching	BSE or CNS
	NX - Automatic Loop Transfer	BSE
	PB - Automatic Loop Transfer	BSE
	PB - Digital Data Service	BSE
	SWB - Automatic Loop Transfer	BSE
	Qwest - Automatic Loop Transfer	BSE

FEATURE OPERATION:

Automatic Protection Switching (APS) can be offered in two configurations. It can be offered as a stand alone APS for use with T1 carrier or as DS1 APS incorporated into a DS3/1 multiplexer unit.

The stand alone unit, in conjunction with an identical unit at the opposite end of the T1 carrier facility to be protected, switches from the primary T1 carrier facility to a standby facility upon detection of a loss of the 1.544 Mbps signal or of an unacceptable Bit Error rate. There are two T1/1.544 Mbps inputs from the line side of the unit, a primary input and the standby input. The inputs normally terminate on a cross connect device and are connected to the DS1 Access Link carrier facilities between the Serving Wire Center and the Customer Premises.

There is one 1.544 Mbps output port on the APS unit. In the central office it will be terminated on a digital cross connect frame for interconnection with other DS1 facility terminations or switch appearances. On a customer premises, it will be terminated on a standard Network Interface.

The DS1 APS method is accomplished by means of circuitry contained within the DS3/1 multiplexer. The low speed DS1 cards can have an optional APS capability on a DS3 basis. Some levels of protection are 1 for 4 and 1 for 7, depending upon the manufacturer of the multiplexer unit. This equipment is part of a DS3 or higher level transmission system and cannot be applied to metallic-based T1 carrier. The facility side DS1 is internal to the multiplexer. The DS1 output of the multiplexer is terminated on a DS1 cross connect frame in the Serving Wire Center.

TECHNOLOGICAL AND FEATURE INTERACTION CONSIDERATIONS:

1. This capability must be deployed on a circuit by circuit basis when offered in a stand-alone configuration.
2. There is no feature interaction.

3. References:

- GR-474 OTGR Section 4: Network Maintenance: Alarm and Control for Network Elements (A Module of OTGR, FR-439), Issue 1, December 1997 (replaces TR-NWT-000474, Issue 4)
- GR-833 OTGR: Network Maintenance: Network Element and Transport Surveillance Messages, Issue 2, November 1996, Issue 3, February 1999, Issue 4, June 2000, component of FR-482 OTGR Section 12.0: Operations Applications Messages (replaces TR-NWT-000833, Issue 5)
- TA-TSY-000435 DS1 Automatic Facility Protection Switching (AFPS) Feature For Digital Terminal System Requirements and Objectives, Issue 1, February 1987
- TR-TSY-000238 Digital Channel Bank Dual-Tone Multifrequency (DTMF) Code Select Signaling Channel Unit, Issue 1, December 1986
- SR-NWT-001756 Automatic Protection Switching for SONET, Issue 1, October 1990

This service, if offered as a BSE, may be associated with the Dedicated Digital (< 64 kbps), Dedicated High Capacity Digital (1.544 Mbps) and Dedicated High Capacity Digital (> 1.544 Mbps) basic serving arrangements.